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09/654,987	09/05/2000	Aiden Flanagan	S63.2-8765	7494

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6109 BLUE CIRCLE DRIVE  
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MINNETONKA, MN 55343-9185

EXAMINER

YAO, SAM CHAUN CUA

ART UNIT	PAPER NUMBER
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1733

22

DATE MAILED: 05/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/654,987

Applicant(s)

FLANAGAN, AIDEN

Examiner

Sam Chuan C. Yao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 05 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-13, 16 and 30-60 is/are pending in the application.
- 4a) Of the above claim(s) 30 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-13, 16 and 38 is/are allowed.
- 6) ☒ Claim(s) 31-37 and 39-60 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 31-32, 34-37, and 47-49 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The original disclosure does not provide sufficient support to the following limitations: "*at least two lenses*"; "*at least two lens*"; "*striking at least one mirror*". For instance, the limitation "*at least two lenses*" reads on 100, 1000 lenses.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 31-33 and 35-37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 31-32 and 36-37 are indefinite, because these claims are redundant (i.e. indistinguishable) from each other.

Claims 33 and 35 are indefinite, because it is unclear how these claims further limit claim 1. These claims appear to broaden claim 1 instead of narrowing it.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Renumbered claims 39-44, 46-49, 51 and 55-60 are rejected under 35 U.S.C. 102(b) as being anticipated by Forman (US 5,501,759).

It is taken that, the limitation of "generating at least one annular beam of electromagnetic energy substantially continuous in the annular direction, ..." reads on an embodiment taught by Forman where fixture (118) is provided with 6 radial openings for 6 optical fibers (122-132); wherein, these optical fibers are connected to a laser energy source (134) and are used to uniformly distribute a laser energy beam around a "bond area and slightly overlapping one another along the annular bond site to insure substantially even energy distribution." (emphasis added). Also see column 1 lines 11-16; column 5 lines 15-35; column 6 lines 31-61; column 7 lines 42-54; and figures 8-14. Note: since the laser beams overlap one another along an annular site, catheter tubing and balloon must inherently be exposed to a substantially continuous annular laser beam. Moreover, the annular laser energy beam from the optical fibers must inherently have a "substantially uniform distribution annularly" because as noted above, the "annular bond site" has a "substantially even energy distribution".

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With respect to claims 40 and 44, since these claims **do not** require simultaneously directing 1<sup>st</sup> and 2<sup>nd</sup> annular beams ..., and **do not** require the 1<sup>st</sup> and 2<sup>nd</sup> annular beams being generated from different laser sources; and, since Forman further teaches that, after performing a distal bonding, a proximal bonding is also performed in "*substantially the same process*" (col. 9 lines 13-18); the limitations in these claims are taken to read sequentially directing a laser beam shown in figures 11-14 of Forman against catheter tubing and balloon.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Renumbered claims 39, 41-44, 46-51, and 55-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Forman (US 5,501,759) in view of Wysocki et al (US 5,339,380).

Note: several of these claims were taken to be anticipated by Forman as set forth in numbered paragraph 6 above. This paragraph is used as an alternative rejection, in case, the limitation "*generating at least one annular beam of electromagnetic energy substantially continuous in the annular direction*" defines over the teachings of Forman where laser is substantially uniformly distributed around a catheter tube via optical fibers to form an "*annular bond site*". In any

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event, it would have been obvious in the art to “*generat[e] at least one annular beam of electromagnetic energy substantially continuous in the annular direction*” in bonding a balloon onto a catheter in the process taught by Forman because: Wysocki et al teaches using a laser and a parabolic mirror to “*generate at least one annular beam of electromagnetic energy*” to fusion-weld a pair of optical fibers, and further discloses that, the optical fibers are uniformly heated around their circumference and the process produces “*highly reproducible results ...*” (col. 2 lines 18-68). The collective teachings of Forman and Wysocki et al would have suggested to one in the art to incorporate the laser heating technique of Wysocki et al to the process of Forman in welding a balloon catheter to a catheter tube because it provides an effective and yet highly reproducible way of uniformly heating around a catheter tube and catheter balloon so that they can be uniformly welded together and form a uniform “fluid tight seals” (col. 1 lines 14-16).

With respect to claims 47-49, see figure 2 of the Wysocki et al patent.

With respect to claim 50, though not expressly disclosed, the laser energy of either of these patents is taken to be monochromatic. In any event, such would have been obvious in the art, since it is conventional in the art to use a monochromatic laser energy beam in welding thermoplastic members.

9. Renumbered claims 40, 44-45 and 52-54 is rejected under 35 U.S.C. 103(a) as being unpatentable over Forman (US 5,501,759) as applied to claim 39 in numbered paragraph 6 above.

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Note further that: claims 40 and 44 were also taken to be anticipated by Forman. This alternative rejection made on these claims in case that, these claims require using two different sources of annular laser beam.

Forman further teaches that, after performing a distal bonding, a proximal bonding is also performed in "*substantially the same process*" (col. 9 lines 13-18). It would have been obvious in the art to modify the process of Forman and simultaneously heat-weld a balloon and a catheter tube around distal and proximal portions in order to increase the production efficiency. All that would be needed is to provide another set of 6 optical fibers, a fixture, and if needed another laser source.

10. Renumbered claims 52-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over the references set forth in numbered paragraph 8 as applied to claim 39 above, and further in view of Buchroeder et al (US 4,623,776).

Forman further teaches that, after performing a distal bonding, a proximal bonding is also performed in "*substantially the same process*" (col. 9 lines 13-18). It would have been obvious in the art, motivated by the desire to increase production efficiency, to simultaneously heat-weld a balloon and a catheter tube around distal and proximal portions because it is old in the art to simultaneously laser heat a tubular work-piece at two different locations from a ring of laser light by setting an optical system to a proper angular arrangement as exemplified in the teachings of Buchroeder et al (figure 3); and because one in the art would have reasonably been able to construct an optical arrangement such that, a

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parabolic mirror similar to the one taught by Wysocki et al can be used to simultaneously focus beams of laser light at the two bonding portions of the catheter tube and balloon using two of laser energy sources and two focusing lenses.

***Allowable Subject Matter***

11. Claims 1-13, 16, and 38 are allowed.


***Conclusion***

12. Under Rule 1.126, newly added claims 40-61 were renumbered to 39-60.
13. It is suggested for Applicant to cancel non-elected 30. This claim is dependent on canceled claim 27.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Chuan C. Yao whose telephone number is (703) 308-4788. The examiner can normally be reached on Monday-Friday with second Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael W Ball can be reached on (703) 308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7115 for regular communications and (703) 305-7718 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.

  
Sam Chuan C. Yao  
Primary Examiner  
Art Unit 1733

scy  
May 13, 2003